



KNOWLEDGE AND EMPLOYABILITY SCIENCE 16-26

Policy: Knowledge and Employability courses provide students who meet the criteria with opportunities to experience success and become well-prepared for employment, further studies, citizenship and lifelong learning (*Knowledge and Employability Courses Policy 1.4.2*).

VISION

Through Knowledge and Employability courses, students become active, responsible citizens, achieve their educational and career goals, improve the quality of life for themselves and their families, and positively impact their communities.

PHILOSOPHY AND RATIONALE

The development of a distinctive sequence of courses such as Knowledge and Employability is based on input about the needs of learners gathered from consultations with education stakeholders throughout the province.

To meet the educational needs of students, Knowledge and Employability courses are designed for the student who learns best:

- when meaningful connections are made between schooling and personal experiences.

Knowledge and Employability courses assist students to make the transition from school to the workplace and community, prepare for responsible citizenship, and be recognized, respected and valued by employers and further education providers. The skills, abilities and work effort that Knowledge and Employability courses promote include:

- academic and occupational skills of a standard determined by the workplace to be necessary for success
- practical applications through on- and off-campus experiences and/or community partnerships
- career development skills to explore careers, develop a career-focused portfolio and assess career skills
- interpersonal skills to ensure respect, support and cooperation with others.

the focus is on the development and application of reading, writing and mathematical literacy,¹ and essential employability skills

through experiential learning activities

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tical literacy: *Selecting and applying appropriate mathematical operations, problem-solving strategies, tools and technology, and communicating using mathematical vocabulary in home, workplace and community experiences.*

Knowledge and Employability
Education, Alberta, Canada

Science 16-26 /1
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To meet the educational needs of students, Knowledge and Employability courses are designed for the student who learns best:

- when the focus is on the development and application of reading, writing and mathematical literacy,¹ and essential employability skills
- through experiential learning activities

- when meaningful connections are made between schooling and personal experiences.

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- interpersonal skills to ensure respect, support and cooperation with others.

1. *Mathematical literacy: Selecting and applying appropriate mathematical operations, problem-solving strategies, tools and technology, and communicating using mathematical vocabulary in home, workplace and community experiences.*

Aboriginal Perspectives and Experiences

For historical, constitutional and social reasons, an understanding of First Nations, Métis and Inuit (FNMI) experiences and perspectives, and recognition that First Nations, Métis and Inuit students have particular needs and requirements is necessary to enable all students to be respectful and responsible citizens.

Knowledge and Employability courses serve to facilitate positive experiences that will help Aboriginal students better see themselves in the curriculum and assist non-Aboriginal students to develop a better understanding of Alberta's First Nations, Métis and Inuit peoples.

GOALS OF KNOWLEDGE AND EMPLOYABILITY COURSES

Knowledge and Employability courses provide students with practical and applied opportunities to develop competencies necessary to meet or exceed the following goals:

- earn a senior high school credential
- enter the workplace upon leaving school with employability and occupational skills that meet industry standards
- make successful transitions to other courses or to further education and training
- become responsible and contributing members of society.

CROSS-CURRICULAR COMMUNITY AND WORKPLACE CONNECTIONS

Programs of study and resources for Knowledge and Employability courses are distinctive, in part, because they promote cross-curricular, community and workplace connections.

Cross-curricular Connections

Knowledge and Employability courses promote the integration of subjects to emphasize their interrelationships and connections to other school subjects. The philosophy of Knowledge and Employability courses is that students learn best when they can clearly recognize connections, applications and relevance to a variety of everyday experiences. Organizing for

instruction may include thematic units, subject integration within units and/or projects in other subjects.

Community and Workplace Connections

Knowledge and Employability courses provide students with practical and applied opportunities to develop basic reading, writing and mathematical literacy. Community and workplace connections ensure learning within applied contexts and connect the school with environments beyond school, and may include tours to local business and industry, mentorships, job shadowing and work experience.

Knowledge and Employability courses promote the development of career portfolios. Career portfolios help students connect their school experience to the world beyond school. Each portfolio will include exemplars of the student's on- and off-campus experiences and can be used when the student is seeking employment or other post-secondary opportunities. Items appropriate for inclusion in career portfolios are: resumes, samples of written work, awards and/or their representations, teacher and self-evaluation checklists, workplace assessment tools and employer letters of recommendation.

SAFETY

Safety is emphasized and incorporated throughout Knowledge and Employability courses. Courses include basic safety rules and guidelines, and the safe use of tools, equipment and materials in school, home, community and workplace settings.

TECHNOLOGY

Because technology is best learned within an applied context, Information and Communication Technology (ICT), and the use of computers and other technologies are included in Knowledge and Employability courses to help students make the transition to the world beyond school.

ESSENTIAL UNIVERSAL SKILLS AND STRATEGIES

Knowledge and Employability courses emphasize universal skills and strategies that are essential to all students, including the following.

- Interpersonal skills to promote teamwork and respect for, support of and cooperation with others.
- Critical thinking to promote the analysis and appropriate applications of information.
- Creative thinking to promote identification of unique connections among ideas and insightful approaches to questions and issues.
- Decision making to promote making timely and appropriate decisions.
- Problem solving to promote the ability to identify or pose problems, and apply learning to consider the causes, dimensions of and solutions to problems.
- Metacognition² is thinking about thinking and enables students to become more aware of their own thinking and learning processes, and gain greater control of these processes.

RELATIONSHIP TO OTHER COURSES

To enable students, as appropriate, to progress to other Knowledge and Employability course(s) and/or other secondary courses, each Knowledge and Employability course is consistent with the rationale, philosophy, program foundations and organization of other secondary courses.

ENROLLMENT IN KNOWLEDGE AND EMPLOYABILITY COURSES

Students may take one or more courses in the sequence at any time during grades 8 through 12. Students may be enrolled in all courses, or a combination of Knowledge and Employability and other courses.

For information about identifying students for enrollment in one or more courses, see *Knowledge and Employability Courses Policy* and the *Information Manual for Knowledge and Employability Courses*.

RATIONALE AND PHILOSOPHY OF KNOWLEDGE AND EMPLOYABILITY SCIENCE

Knowledge and Employability Science focuses on developing and applying essential science skills, knowledge and attitudes needed for everyday living at home, in the workplace and in the community. Science competencies are developed through investigating science-related problems, questions and issues, and providing everyday applications to help students understand and appreciate the role of science in our society.

Knowledge and Employability Science courses emphasize career/life skills, teamwork, communication skills and thinking processes. Each grade level is developed within a scientific inquiry framework emphasizing problem-solving and decision-making skills appropriate for students' abilities and everyday applications.

Diverse learning experiences within the science courses provide students with opportunities to explore, analyze and appreciate the interrelationships among science, technology, society and the environment, and develop understandings that will affect their lives at home, in the workplace and in the community.

2. *Metacognition: Learning-to-learn strategies; awareness of processes and strategies one uses when learning.*

SCIENCE FOUNDATIONS

Knowledge and Employability Science courses promote development of the four foundations of science.

Foundation 1: Science, Technology and Society (STS)

Students will explore their everyday home, workplace and community environments, gather information, develop ideas, and use technology and other tools to make decisions about their personal lives. Students will recognize the influence of science on decision making by individuals, communities and society.

Foundation 2: Knowledge

Students will investigate theories, models, concepts, processes and principles in life, physical, Earth and space science with an emphasis on application to everyday living.

Foundation 3: Skills

Students will develop scientific communicating and teamwork, initiating and planning, performing and recording, and analyzing and interpreting skills to answer questions, solve problems and make decisions in their everyday lives.

Foundation 4: Attitudes

Knowledge and Employability Science courses emphasize the development of positive attitudes and behaviours related to collaboration, mutual respect, safety and stewardship in everyday living.

GOALS

The principal goal of Knowledge and Employability Science is to assist students to become contributing members of society and independent and lifelong learners by developing the following science competencies:

- communication and teamwork skills to work collaboratively in a group
- develop attitudes that will enable them to use their knowledge and skills in a responsible manner

- select and apply appropriate science skills, tools and strategies to understand and interpret their world
- explore interests and ideas, using appropriate problem-solving and decision-making strategies
- apply science understandings, skills and attitudes to everyday life/work situations.

UNITS OF STUDY

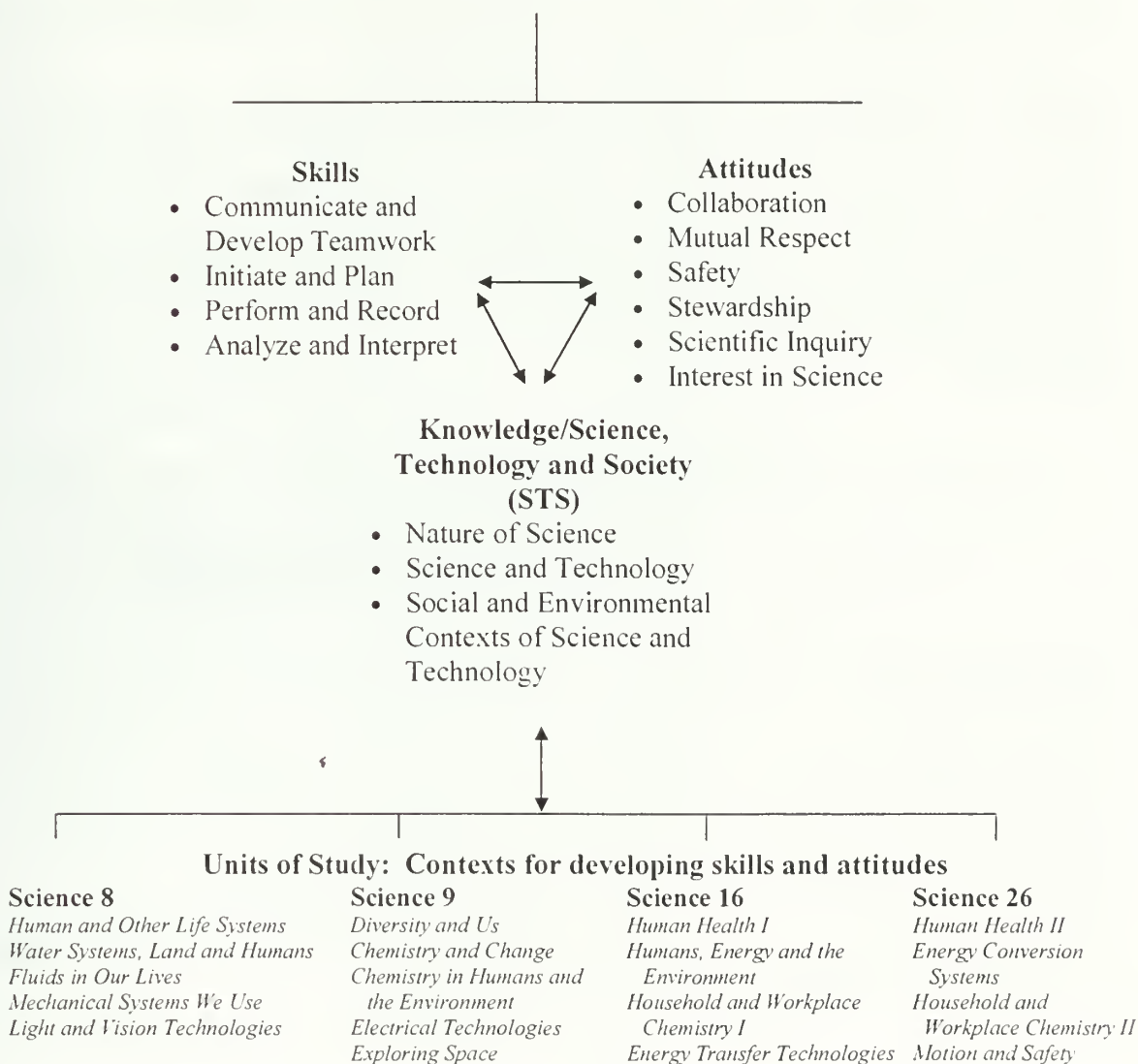
In order for students to solve problems and make decisions about science in relation to their everyday experiences, the components of science need to be organized into appropriate contexts.

The **Units of Study** provide the contexts within which skills, attitudes, knowledge and science, technology and society (STS) outcomes are developed as appropriate for students' abilities and everyday living at home, in the workplace and in the community.

Each unit of study has **guiding questions** to provide direction for inquiry. **Specific outcomes** include **key concepts** that are bolded to highlight their significance.

GRAPHIC OF KNOWLEDGE AND EMPLOYABILITY SCIENCE

Knowledge and Employability Science provides basic science literacy. The course promotes awareness, understanding, and the development and application of science skills, knowledge and attitudes for successful living at home, at the workplace and in the community.



SCIENCE 16

SCIENCE OUTCOMES: Students will develop and apply science skills, attitudes and knowledge to investigate everyday, science-related problems, questions and issues; perform experiments; carry out investigations; include Aboriginal experiences/perspectives as appropriate; and apply scientific process skills in home, workplace and community environments. Students will develop an awareness of how science skills, attitudes and knowledge are used in other subjects and everyday life, particularly in the workplace.

SKILLS OUTCOMES: Students will apply science skills, processes and technology as appropriate to a variety of everyday and science-related questions, problems and issues.

COMMUNICATE AND DEVELOP TEAMWORK

Students will use appropriate vocabulary to communicate scientifically, and appropriate communication and team building skills to work successfully in a group at school, at home, in the workplace and in the community.

In relation to the Units of Study, *students will:*

- a. identify multiple perspectives that influence a science-related decision or issue
- b. recognize and support alternative perspectives and decisions as group members and as individuals
- c. recommend appropriate ways to summarize and interpret findings
- d. develop, present and defend a position or course of action based on findings
- e. use a variety of strategies to troubleshoot group work problems as they arise
- f. collaborate with others to plan and achieve science goals
- g. listen to and act on the ideas of others
- h. use specific language that is scientifically and technologically appropriate to communicate results
- i. communicate problems, plans and results in a variety of ways, such as written/oral language, tables, graphs, drawings, demonstrations and computer or other presentations.

INITIATE AND PLAN

Students will initiate the process of, and develop plans for, resolving problems, investigating issues and/or completing experiments, using technology as appropriate. Students will apply science-related initiating and planning skills to everyday situations at home, in the workplace and in the community.

In relation to the Units of Study, *students will:*

- a. identify everyday and science-related problems, questions and issues, and develop an action plan
- b. formulate and list questions to guide inquiry
- c. identify consequences of various strategies to solve problems
- d. identify strategies, tools and other resources for gathering and organizing information/data
- e. identify the variables related to an investigation/experiment
- f. select appropriate sampling procedures
- g. locate, identify and record relevant background information using appropriate strategies such as:
 - skimming or scanning to locate key words and phrases
 - viewing
 - note-taking
 - recording on cassette tapes
 - making charts or tables
- h. propose alternative solutions to a scientific problem
- i. design an investigation/experiment.

PERFORM AND RECORD

Students will investigate everyday and science-related problems, questions and issues; and perform experiments and record information, using technology as appropriate. Students will apply science-related performing and recording skills to everyday situations at home, in the workplace and in the community.

In relation to the Units of Study, *students will:*

- a. perform experiments and/or conduct investigations, including some that are self- or group-designed
- b. demonstrate knowledge of safety standards and symbols by using proper techniques for handling and disposing of materials
- c. apply appropriate sampling procedures
- d. use tools, technology and apparatus safely and effectively in collecting and organizing data
- e. gather, record and organize data and information using formats and data treatments as appropriate to facilitate interpretation of the data
- f. select and integrate information from various print and electronic sources or from several parts of the same source
- g. create and label diagrams/drawings, using technology as appropriate
- h. recognize that information and sources may be inaccurate, incomplete and/or biased
- i. demonstrate responsibility for following appropriate security and safety measures when using technology, the Internet and other information sources (e.g., respect the products and privacy of others)
- j. estimate and determine measurements.

ANALYZE AND INTERPRET

Students will analyze and interpret results of everyday and science-related investigations/experiments, and assess personal and group performance, using technology as appropriate. Students will apply science-related analyzing and interpreting skills to everyday home, workplace and community situations.

In relation to the Units of Study, *students will:*

- a. assess various methods used to gather, organize and display data
- b. assess the reasonableness of data, information and/or results, and process/plan
- c. evaluate designs and prototypes in terms of one or more of the following: function, reliability, safety, efficiency, use of materials, and impact on the environment
- d. use data or information gathered to defend or support a prediction or hypothesis
- e. identify relationships among variables
- f. identify patterns and relationships in information and data
- g. identify potential sources of error
- h. examine how evidence gathered supports or refutes an initial hypothesis
- i. identify a reasonable response, inference and/or conclusion to a problem, question or issue
- j. use a variety of strategies and tools to assess individual and group processes used in planning, problem solving, decision making and task completion
- k. identify possible applications of findings.

ATTITUDE OUTCOMES: Students will continue to be encouraged to develop and display collaboration, mutual respect, safety, stewardship, scientific inquiry and interest in science. Students will be encouraged to apply appropriate scientific attitudes to home, workplace and community situations.

| | |
|----------------------------|---|
| COLLABORATION | <i>Students will be encouraged to:</i> a. work collaboratively in carrying out investigations and in generating and evaluating ideas. |
| MUTUAL RESPECT | b. appreciate that scientific understanding evolves from the interaction of ideas involving people with different views and backgrounds c. recognize that different cultures, including Aboriginal cultures, may have unique scientific perspectives. |
| SAFETY | d. be aware of the direct and indirect consequences of person/group actions e. accept the need for rules and regulations f. demonstrate concern for safety in planning, carrying out and reviewing activities. |
| STEWARDSHIP | g. value the personal, social and environmental consequences of a proposed action h. develop a sense of personal and shared responsibility for maintaining a sustainable environment i. recognize the personal, social and environmental consequences of a proposed action j. recognize that the traditional Aboriginal lifestyle supports a unique relationship with the environment. |
| SCIENTIFIC INQUIRY | k. apply a variety of strategies to investigate questions, problems and issues l. use scientific methods to carefully gather evidence in investigating problems and issues m. value the scientific process n. use factual information and rational explanations when analyzing and evaluating. |
| INTEREST IN SCIENCE | o. demonstrate interest in science-related questions and issues p. pursue personal interests and career possibilities within science-related fields. |

SCIENCE 16

KNOWLEDGE/SCIENCE, TECHNOLOGY AND SOCIETY (STS)

UNITS OF STUDY: Units of study in Knowledge and Employability Science provide the context for the development of science skills and attitudes. The units provide opportunities for students to construct knowledge and understanding in science, and apply these understandings to interpret, integrate and extend their knowledge in everyday home, workplace and community settings.

16.1 HUMAN HEALTH I (Investigating Matter and Energy in Living Systems)¹

Guiding Questions

What lifestyle choices will increase the health of our organs and organ systems?

What home, workplace or community factors have the potential to improve/harm our health?

Students will:

- recognize that the **digestive, respiratory and circulatory** systems are **interdependent**
- investigate human **nutritional needs** using *Canada's Food Guide to Healthy Eating* and other resources
- recognize the impact in Aboriginal and other cultures of a change of diet/eating habits away from traditional foods
- investigate **healthy lifestyles** and factors that affect healthy lifestyles, such as diet and exercise
- investigate sources of energy in organisms and strategies to store or use energy including respiration and photosynthesis
- identify the role of technology in improving and monitoring human health
- use a variety of strategies to identify the **nutritional value** of foods such as reading the labels of prepared foods, and investigating and comparing popular diets
- investigate community and other organizations or events and related employment opportunities that contribute to human health.

16.2 HUMANS, ENERGY AND THE ENVIRONMENT (Investigating Matter and Energy in the Environment)

Guiding Questions

In what ways do we affect energy in the environment (e.g., recycling, hunting, trapping, recreational activities, and household/workplace energy consumption)?

What factors affect the environment in your area?

Students will:

- investigate natural **food chains, food webs** and **energy pyramids**, and how human societies, including traditional Aboriginal societies, influence them
- recognize that **recycling** occurs in nature and investigate human influences on recycling
- examine factors affecting **population growth** in humans and other organisms
- recognize the unique and different characteristics of Alberta **biomes**
- investigate the positive and negative influences of humans on the environment, including our use of
 - biodegradable/nonbiodegradable materials
 - technologies and practices in areas such as agriculture, transportation, recreation and the oil/gas industry
- recognize that different cultures affect the environment in different ways, including the traditional Aboriginal use of organic material based on an understanding of the natural environment
- recognize that **environmental laws** exist for a purpose
- investigate community and other organizations or events and related employment opportunities that relate to energy and/or the environment.

1. Brackets represent title of related units of study in Science 14.

16.3 HOUSEHOLD AND WORKPLACE CHEMISTRY I

(Investigating Properties of Matter)

Guiding Questions

What chemicals are used at home and in the workplace, and how are they used?

What safety standards exist for use, storage and transportation of chemicals and how are they applied at the workplace and in the community?

Students will:

- communicate/demonstrate **safe handling, storage and disposal** of household and workplace chemicals using **Workplace Hazardous Materials Information System (WHMIS)**, **Household Hazardous Products Symbols (HHPs)** and other workplace standards
- recognize that household and workplace chemicals are affected by concentration, temperature and other chemicals, and use appropriate safety precautions
- recognize that **concentration** and **temperature** affect safety, viscosity, flow rates and buoyancy of fluids
- investigate common chemical changes such as the rusting of metals
- write word equations for common chemical reactions resulting in water, table salt, rust, oxygen, carbon dioxide
- recognize the periodic table and that it is used to display and organize elements according to their properties
- apply the particle model of matter to explain the states of matter
- investigate community and other organizations or events, and employment opportunities related to household and workplace chemical use.

16.4 ENERGY TRANSFER TECHNOLOGIES

(Understanding Energy Transfer Technologies)

Guiding Questions

What energy transfer technologies are used in everyday life? e.g., solar panels, cooking pots and ovens.

How can we use energy transfer technologies to meet our needs and conserve energy?

Students will:

- distinguish among temperature, heat and thermal energy using the particle model of matter
- investigate **radiation, convection** and **conduction** in relation to cooling and heating homes and workplaces, include connections to traditional Aboriginal dwellings such as tipis and igloos
- recognize RSI values and identify methods/strategies for reducing **thermal energy** transfer, such as home insulation, firefighting equipment and clothing, and triple-paned windows
- investigate thermostats and other energy-related technologies
- identify technologies, symbols, strategies and products that reduce reliance on **nonrenewable energy** sources and that make consumers aware of energy use, including those used by traditional Aboriginal societies
- investigate community and other organizations or events involved in energy transfer technologies, and related employment opportunities.

SCIENCE 26

SCIENCE OUTCOMES: Students will develop and apply science skills, attitudes and knowledge to investigate everyday and science-related problems, questions and issues; perform experiments; carry out investigations; include Aboriginal experiences/perspectives as appropriate; and apply scientific process skills in home, workplace and community environments. Students will develop an awareness of how science skills, attitudes and knowledge are used in other subjects and everyday life, in particular, the workplace.

SKILLS OUTCOMES: Students will apply science skills and technology as appropriate to a variety of everyday and science-related questions, problems and issues.

COMMUNICATE AND DEVELOP TEAMWORK

Students will use appropriate vocabulary to communicate scientifically, and appropriate communication and team building skills to work successfully in a group at school, at home, in the workplace and in the community.

In relation to the Units of Study, *students will:*

- work appropriately as a member of a team when investigating science-related and/or everyday problems or issues
- communicate information and ideas and assess results using the skills and conventions of science
- develop and defend a personal or group position/action
- select and use appropriate methods/tools when communicating ideas, plans and results to others, such as computer-generated reports, graphs, presentations and discussions
- collaborate with others to plan and achieve science goals
- use appropriate strategies to troubleshoot problems.

INITIATE AND PLAN

Students will initiate the process of, and develop plans for, resolving problems, investigating issues and/or completing experiments, using technology as appropriate. Students will apply science-related initiating and planning skills to everyday situations at home, in the workplace and in the community.

In relation to the Units of Study, *students will:*

- design an experiment/investigation and identify manipulated, responding and controlled variables
- identify everyday and science-related problems, questions and issues
- use appropriate methods and tools for collecting data and information, including technology, as appropriate
- create a plan for an inquiry that includes consideration of time management
- formulate and list questions to guide inquiry
- identify knowledge and determine information gaps.

PERFORM AND RECORD

Students will investigate everyday and science-related problems, questions and issues, perform experiments and record information, using technology as appropriate. Students will apply science-related performing and recording skills to everyday situations at home, in the workplace and in the community.

In relation to the Units of Study, *students will:*

- design and carry out experiments and/or investigations,
- use tools, technology and apparatus safely
- select and integrate information from various print and electronic sources or from several parts of the same source
- gather, record, organize and display data and information using appropriate tools, formats and data treatments to facilitate interpretation of the data (e.g., surveys, electronic and/or other research tools/methods)
- demonstrate responsibility for following appropriate security and safety measures when using technology, the Internet and other information sources (e.g., respect the products and privacy of others)
- estimate and determine measurements.

ANALYZE AND INTERPRET

Students will analyze and interpret results of everyday and science-related investigations/experiments, and assess their own personal and group performance, using technology as appropriate. Students will apply science-related analyzing and interpreting skills to everyday home, workplace and community situations.

In relation to the Units of Study, *students will:*

- a. identify and evaluate a variety of methods for collecting and displaying data
- b. develop criteria for evaluating a device/prototype and evaluate their own personally designed and constructed device/prototype
- c. identify sources of error and uncertainty in measurement, and express results in a form that acknowledges the degree of uncertainty
- d. identify a variety of criteria for evaluating evidence and sources of information, such as:
 - social/cultural factors
 - methods of collecting data
 - data and related research and relevance
 - presence of bias
- e. use a variety of methods/strategies to display data and information to enhance interpretation, such as diagrams, flow charts, tables, graphs
- f. examine the reasonableness of results/information
- g. synthesize information from multiple sources
- h. explain how evidence gathered supports or refutes an initial hypotheses or decision
- i. evaluate the appropriateness of the technology used to investigate or solve a problem
- j. identify and evaluate everyday applications of findings.

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ATTITUDE OUTCOMES: Students will continue to be encouraged to develop and display collaboration, mutual respect, safety, stewardship, scientific inquiry and interest in science. Students will be encouraged to apply appropriate scientific attitudes to home, workplace and community situations.

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| STEWARDSHIP | g. value the personal, social and environmental consequences of a proposed action h. develop a sense of personal and shared responsibility for maintaining a sustainable environment i. recognize the personal, social and environmental consequences of a proposed action j. recognize that the traditional Aboriginal lifestyle supports a unique relationship with the environment. |
| SCIENTIFIC INQUIRY | k. apply a variety of strategies to investigate questions, problems and issues l. use scientific methods to carefully gather evidence in investigating problems and issues m. value the scientific process n. use factual information and rational explanations when analyzing and evaluating. |
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SCIENCE 26

KNOWLEDGE/SCIENCE, TECHNOLOGY AND SOCIETY (STS) OUTCOMES

UNITS OF STUDY: Units of study in Knowledge and Employability Science provide the context for the development of science skills and attitudes. The units provide opportunities for students to construct knowledge and understanding in science, and apply these understandings to interpret, integrate and extend their knowledge in everyday home, workplace and community settings.

26.1 HUMAN HEALTH II (Disease Defense and Human Health)¹

Guiding Questions

What factors affect human health?

What factors affecting human health can be controlled and how?

How can we maintain good health?

Students will:

- recognize similarities and differences among **communicable** and **noncommunicable diseases** and relate these to human health
- recognize that human inheritance and environment affect our **natural defense** mechanisms
- recognize that hygiene habits influence contamination and health
- recognize that individuals and society have roles in decision making regarding human health
- investigate community organizations that promote health and healthy living
- communicate factors contributing to a **healthy lifestyle** including those used by traditional Aboriginal societies
- investigate health-related community organizations or events, and potential employment opportunities.

26.2 ENERGY CONVERSION SYSTEMS (Understanding Common Energy Conversion Systems)

Guiding Questions

What energy conversion systems are present in our everyday lives and how do they influence us at home, in the workplace and in the community?

Students will:

- recognize that energy can change form (e.g., from chemical (batteries) to sound energy in a CD player or portable radio)
- identify technologies that transform and regulate energy in the home, community and workplace (e.g., thermostat, can opener)
- identify **fossil fuels** and recognize that they are non-renewable sources of energy
- explain **energy consumption** and **units of electrical energy** including watts, KWh
- investigate community organizations or events, and employment opportunities relating to electricity and other forms of energy and related technologies.

26.3 HOUSEHOLD AND WORKPLACE CHEMISTRY II (Applications of Matter and Chemical Change)

Guiding Questions

How do chemicals and chemical changes influence our lives in the home, workplace and community?

Students will:

- communicate safe use of household and workplace chemicals
- identify common chemicals and solutions in the home and workplace and their uses
- identify common chemicals and chemical reactions, such as rusting, at home and in the workplace
- identify and apply appropriate **safety standards** at home, at the workplace and in the community when using chemicals including **Workplace Hazardous Materials Information System WHMIS** and **Household Hazardous Products Symbols (HHPS)**
- investigate community and other organizations or events, and employment opportunities related to household and workplace chemical use.

1. Brackets represent title of related units of study in Science 24.

26.4 MOTION AND SAFETY

(Motion, Change and Transportation Safety)

Guiding Questions

What transportation factors in our community are positive and which could be improved?

How can we increase transportation safety?

Students will:

- a. gather and interpret data and information about relationships between reaction time, speed, safe following distance and other transportation safety issues to become more aware of **safe driving practices**, for example:
 - transportation **safety regulations**, which students will relate to personal driving habits (e.g., seat belts reduce injury)
 - basic vehicle maintenance (e.g., the need to change fluids when outdoor temperatures change to reduce friction and wear on engine)
 - ways to increase **transportation safety** (e.g., momentum, reaction time and stopping distance)
- b. investigate community organizations or events, and employment opportunities related to transportation and transportation safety.

4

REFERENCES

Alberta Learning. *The Alberta Framework of Essential Competencies for Working, Learning and Living.*

Guide to Education: ECS to Grade 12.

<http://www.education.gov.ab.ca/educationguide/default.asp>

Integrated Occupational Program Information Manual for Administrators, Counsellors and Teachers

http://www.education.gov.ab.ca/k_12/curriculum/bySubject/iop/IOPmanual.pdf

Off-campus Education Guide for Administrators, Counsellors and Teachers

http://www.education.gov.ab.ca/k_12/curriculum/offcampus.pdf

Policy, Regulations and Forms Manual

<http://www.education.gov.ab.ca/educationguide/pol-plan/polregs/142.asp>

Registered Apprenticeship Program Information Manual

http://www.education.gov.ab.ca/k_12/curriculum/rapinfoman.pdf

Standards for Educational Assessment (Amended June 2004) by Special Education Branch. Available for purchase at <http://www.lrc.education.gov.ab.ca/pro/resources/item.htm>

